TRW IR&D SYMPOSIUM

20 January 1983

- SOFTWARE PROGRAMMER PRODUCTIVITY

  Provides an automated office environment for professionals in which they can perform in new, more efficient ways, resulting in increased programmer productivity. Goals are to double productivity by 1985 and quadruple it by 1990. Measurements are being made of methods implemented and actual productivity increases.

- RELATIONAL DATA BASE MANAGEMENT SYSTEM

  Provides capabilities necesswary to use the potentially powerful relational DBMS in practical applications: e.g., techniques for exploiting data-base machines like the Britton-Lee IDM500; query languages better suited for relational queries; data structures for applying relational DBMS capabilities to geographic data bases, software tools, etc.

- NETWORK ENGINEERING

  Provides programming language constructs and operating-system capabilities for developing distributed data processing systems in ways which avoid some of the classical DDP pitfalls -- e.g., race and deadlock problems.

- FAULT TOLERANCE

  Provides a flexible network of microprocessor systems that could support a variety of configuration and assessment options. Addresses and resolves many operating system and supporting software problems, and establishes an operating network key to future efforts in fault tolerance. Current activity provides development and evaluation of fault detection mechanisms, specifically for microcode diagnostics on the CPU and error correction on memory.

- MAN-MACHINE INTERFACE

  Provide a Dialog Design Language and associated computer-graphics capabilities enabling designers of interactive systems (C^2 systems, ground stations, fusion centers, automated offices) to compose displays, define sensitive areas on the display, assign meanings to sensitive areas, and pass those meanings to the computer programs that perform desired user functions. Greatly enhances modification of displays and programs as user requirements change.

- MILITARY MICROPROCESSOR FAMILY

  Provides the capability for microprocessors to implement military standard instruction sets. Developed features include: Architecture emulating the AN/UYK-20 standard military architecture; the development of an Instruction Set Architecture to support the direct execution of Ada; processor design/demonstration whose architecture emulates DEC VAX 11-780 with twice the throughput; and processor design/demonstration whose architecture directly executes the intermediate code of an Ada language subset. Current activities will complete the execution-oriented Ada model for the full Ada language, demonstration a 10:1 throughput improvement over schemes involving Ada compilers and conventional ISA's.

- INSTRUCTION SET EMULATION

  Provides design and development of the avionics computes using the Standardized Instruction Set Architecture (MIL-STD-1750A). Develops emulator and instrumentation hardware, as well as microcode for the emulation support processor that provides operator interface and instrumentation control functions.

TRW DEFENSE & SPACE SYSTEMS GROUP
WASHINGTON OPERATIONS
7600 COLSHIRE DRIVE
McLEAN, VIRGINIA 22102

DDA
Washington, D.C. 20505
ATTN: Harry Fitzwater

7-D-18
HQS.

Approved For Release 2008/01/15 : CIA-RDP85B01152R000700990018-6